Index • 1985 • Volume XXVIII
The Journal of Environmental Sciences

SUBJECT INDEX

DESIGN, TEST AND EVALUATION (DTE)

Acoustics

IUS Acceptance Failure Data Base, H.M. McDaniel and L.A. Hopkins, No. 1, p. 25.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.

Climatics and Thermal

A Methodical Approach to Accelerated Screening of Card Assemblies, Static Burn-In Case, I. Pugacz-Muraszkiewicz, No. 2, p. 42.

Corrosion Testing of Captor Strongback Bands, T.J. Prettyman, No. 4, p. 29.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.

Criteria and Standards

A Rectangular Plate as a Proposed Modal Test Structure, D.O. Smallwood and D.L. Gregory, No. 6 p. 41.

IUS Acceptance Failure Data Base, H.M. McDaniel and L.A. Hopkins, No. 1, p. 25.

MIL-STD-781D and MIL-HDBK-781 A Final Report, W.E. Wallace and C. Sontz, No. 3, p. 41.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.

Modeling Realistic Environmental Stresses on External Stores, H.W. Allen, No. 5, p. 26.

Packaging Films for Electronic and Space-Related Hardware, O. Hamberg and E.M. Shon, No. 4, p. 46.

Seismic Bracing of Equipment, R.C. Haskell and J.R. Christiansen, No. 2, p. 67.

Shock and Vibration

A Rectangular Plate as a Proposed Modal Test Structure, D.O. Smallwood and D.L. Gregory, No. 6, p. 41.

Advanced Analysis Techniques for the Optimum Design of Clean Rooms, D.M. Deaves and D. Malam, No. 5, p. 17.

Case Histories of Selection Criteria for Random Vibration Screening, R.G. Lambert, No. 1, p. 19.

Dynamic Aspects of Army Missile Systems, P.L. Green, No. 5, p. 40.

IUS Acceptance Failure Data Base, H.M. McDaniel and L.A. Hopkins, No. 1, p. 25.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.

Modeling Realistic Environmental Stresses on External Stores, H.W. Allen, No. 5, p. 26.

Seismic Bracing of Equipment, R.C. Haskell and J.R. Christiansen, No. 2, p. 67.

Vibration-Random Required, J.D. McGrath and W. Kindig, No. 3, p. 36.

Solar and Space Simulation

A Review of Contamination Issues Associated with an Orbiting Space Station External Environment, A.C. Smith, No. 1, p. 52.

Improved Materials Characterization for Spacecraft Applications, R.A. Cull, No. 3, p. 32.

IUS Acceptance Failure Data Base, H.M. McDaniel and L.A. Hopkins, No. 1, p. 25.

Packaging Films for Electronic and Space-Related Hardware, O. Hamberg and E.M. Shon, No. 4, p. 46.

Simulating Satellite Retrieval Missions Using the Manned Maneuvering Unit, C. Hartley, No. 2, p. 29.

Test Tailoring

Case Histories of Selection Criteria for Random Vibration Screening, R.G. Lambert, No. 1, p. 19.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.

Modeling Realistic Environmental Stresses on External Stores, H.W. Allen, No. 5, p. 26.

CONTAMINATION CONTROL (CC)

Review of Selected Papers from the 7th International Symposium on Contamination Control, I.F. Stowers, No. 2, p. 37.

Clean Room Design/Materials

Advanced Analysis Techniques for the Optimum Design of Clean Rooms, D.M. Deaves and D. Malam, No. 5, p. 17.

Clean Room Classification, K.H. Stokes, No. 6, p. 37.

Clean Room Considerations for Avoiding Molecular Contamination, M.S. McClellan, No. 5, p. 21.

The Effect of Cleanroom Design and Manufacturing Systems on the Microbiological Contamination of Aseptically Filled Products, W.R. Frieben, No. 3, p. 25.

Criteria and Standards

A Review of Contamination Issues Associated with an Orbiting Space Station External Environment, A.C. Smith, No. 1, p. 52.

Assessment of the Diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, D.S. Ensor, B.R. Locke, R.P. Donovan and A.L. Caviness, No. 6, p. 26.

Clean Room Classification, K.H. Stokes, No. 6, p. 37.

Improved Materials Characterization for Spacecraft Applications, R.A. Cull, No. 3, p. 32.

On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, B.Y.H. Liu, W.W. Szymanski and K. Ahn, No. 3, p. 19.

Packaging Films for Electronic and Space-Related Hardware, O. Hamberg and E.M. Shon, No. 4, p. 46.

The Effect of Cleanroom Design and Manufacturing Systems on the Microbiological Contamination of Aseptically Filled Products, W.R. Frieben, No. 3, p. 25.

Filters and Filtration

Air Stripping of Volatile Organics, R.L. Stallings, T.N. Rogers and M.E. Mullins, No. 3, p. 28.
On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, B.Y.H. Liu, W.W. Szymanski and K. Ahn, No. 3, p. 19.
The Effect of Cleanroom Design and Manufacturing Systems on the Microbiological Contamination of Aseptically Filled Products, W.R. Frieben, No. 3, p. 25.

Identification and Measurement

A Review of Contamination Issues Associated with an Orbiting Space Station External Environment, A.C. Smith, No. 1, p. 52.
Assessment of the Diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, D.S. Ensor, B.R. Locke, R.P. Donovan and A.L. Caviness, No. 6, p. 26.
On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, B.Y.H. Liu, W.W. Szymanski and K. Ahn, No. 3, p. 19.
Preliminary Studies of the Effects of Semiconductor Reagents on Polymers Containing Fluorine and of Trace Metallic Leachate from Molded Fluorocarbon Resin, J.F. Imbalzano and J.R. Moody, No. 4, p. 53.
Solvent Contamination Determined by UV Reflection, E.B. Murphy, No. 5, p. 23.
Surface Contamination Measurement and Control by Nondestructive Techniques, A. Arora, No. 6, p. 30.
The Application of Condensation Nuclei Monitors to Clean Rooms, D.S. Ensor and R.P. Donovan, No. 2, p. 34.
The Measurement of Particle Sizes Below 0.1 Micrometers, R.G. Knollenberg, No. 1, p. 32.

Sources and Effects

A Review of Contamination Issues Associated with an Orbiting Space Station External Environment, A.C. Smith, No. 1, p. 52.
Clean Room Considerations for Avoiding Molecular Contamination, M.S. McClellan, No. 5, p. 21.
Improved Materials Characterization for Spacecraft Applications, R.A. Cull, No. 3, p. 32.
On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, B.Y.H. Liu, W.W. Szymanski and K. Ahn, No. 3, p. 19.
Packaging Films for Electronic and Space-Related Hardware, O. Hamberg and E.M. Shon, No. 4, p. 46.
Preliminary Studies of the Effects of Semiconductor Reagents on Polymers Containing Fluorine and of Trace Metallic Leachate from Molded Fluorocarbon Resin, J.F. Imbalzano and J.R. Moody, No. 4, p. 53.
The Effect of Cleanroom Design and Manufacturing Systems on the Microbiological Contamination of Aseptically Filled Products, W.R. Frieben, No. 3, p. 25.

PRODUCT RELIABILITY (PR)

Acquisition Policies

MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Sections 1 through 4 and Methods 500 through 513, H. Caruso, No. 2, p. 51.
MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part II: Method 514, H. Caruso, No. 3, p. 47.
MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part III: Methods 515 through 519, H. Caruso, No. 4, p. 35.
MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part IV: Methods 504 and 520 through 523, H. Caruso, No. 5, p. 45.
MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, H. Caruso and H. Schafer, No. 6, p. 46.
Navy Position on Tailoring Implementation, W.J. Willoughby, Jr., No. 2, p. 48.
Optimizing Contractual Requirements, M.A. Gilleece, No. 1, p. 30.
Reliability Growth Testing Effectiveness, S.F. Morris and P.R. MacDiarmid, No. 4, p. 21.

Criteria and Standards

Case Histories of Selection Criteria for Random Vibration Screening, R.G. Lambert, No. 1, p. 19.
MIL-STD-781D and MIL-HDBK-781 A Final Report, W.E. Wallace and C. Sontz, No. 3, p. 41.
Navy Position on Tailoring Implementation, W.J. Willoughby, Jr., No. 2, p. 48.
Optimizing Contractual Requirements, M.A. Gilleece, No. 1, p. 30.
Reliability Growth Testing Effectiveness, S.F. Morris and P.R. MacDiarmid, No. 4, p. 21.

Stress Screening

A Methodical Approach to Accelerated Screening of Card Assemblies, Static Burn-In Case, I. Pugacz-Muraszkiewicz, No. 2, p. 42.
Automotive Approach to Obtaining Quality Integrated Circuits, M.R. Bustamante and G.T. Hicks, No. 6, p. 24.
Case Histories of Selection Criteria for Random Vibration Screening, R.G. Lambert, No. 1, p. 19.
IUS Acceptance Failure Data Base, H.M. McDaniel and L.A. Hopkins, No. 1, p. 25.
Navy Position on Tailoring Implementation, W.J. Willoughby, Jr., No. 2, p. 48.
Vibration-Random Required, J.D. McGrath and W. Kindig, No. 3, p. 36.

ENERGY AND THE ENVIRONMENT (EE)

Air Quality Impact

Carbon Dioxide and the Environment: A Problem of Uncertainty, J. Lemons, No. 2, p. 60.

Energy Production/Use

Carbon Dioxide and the Environment: A Problem of Uncertainty, J. Lemons, No. 2, p. 60.

Environmental Planning

Carbon Dioxide and the Environment: A Problem of Uncertainty, J. Lemons, No. 2, p. 60.
Defense and the Environment: Policy and Management, Y.H. Choi, No. 1, p. 48.
Liquefied Gaseous Fuels (LGF) Spill Test Facility Program, A.G. Dietz, Jr., No. 5, p. 34.
Scientists Debate Nuclear Source Terms, J. Graham, No. 6, p. 17.

Solid and Hazardous Waste Management

Defense and the Environment: Policy and Management, Y.H. Choi, No. 1, p. 48.

Water Quality Impact

Air Stripping of Volatile Organics, R.L. Stallings, T.N. Rogers and M.E. Mullins, No. 3, p. 28.
Defense and the Environment: Policy and Management, Y.H. Choi, No. 1, p. 48.
Preliminary Studies of the Effects of Semiconductor Reagents on Polymers Containing Fluorine and of Trace Metallic Leachate from Molded Fluorocarbon Resin, J.F. Imbalzano and J.R. Moody, No. 4, p. 53.

COMPUTER APPLICATIONS (CA)

Environmental Modelling/Analysis

A Rectangular Plate as a Proposed Modal Test Structure, D.O. Smallwood and D.L. Gregory, No. 6, p. 41.
Advanced Analysis Techniques for the Optimum Design of Clean Rooms, D.M. Deaves and D. Malam, No. 5, p. 17.
Carbon Dioxide and the Environment: A Problem of Uncertainty, J. Lemons, No. 2, p. 60.
On-Line Information Systems for the Environmental Sciences, T.W. Conkling, No. 2, p. 70.
Simulating Satellite Retrieval Missions Using the Manned Maneuvering Unit, C. Hartley, No. 2, p. 29.

Digital Data Measurement/Processing

Liquefied Gaseous Fuels (LGF) Spill Test Facility Program, A.G. Dietz, Jr., No. 5, p. 34. ■

AUTHOR INDEX

A

Ahn, K. H., On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, No. 3, p. 19. *(Abstract–see Liu, B. Y. H.)*
Allen, H. W., Modeling Realistic Environmental Stresses on External Stores, No. 5, p. 26. *Presents a method for achieving realism required by recent DoD tailoring documents. The emphasis is in tailoring vibration levels to actual mission-defined captive and free-flight profiles. This approach uses a "maximum predicted environment" derived from the statistical analyses of 1839 random vibration flight data measurements made on six different external stores. The basic vibration data used in the analyses were measured on six different host aircraft under a wide variety of captive flight conditions. In comparison, the MIL-STD-810D calculated qualification test requirement for an aft-half, MER cluster, air-to-air missile, produced a required testing level greater than twice the maximum predicted environment (overall grms level) for an equivalent missile.* (DTE Criteria and Standards, Shock and Vibration, Test Tailoring)
Arora, A., Surface Contamination Measurement and Control by Non-Destructive Techniques, No. 6, p. 30. *Presents a new technique to measure thin layer contamination on the surface of a material.* (CC Identification and Measurement)

B

Bustamante, M. R., Automotive Approach to Obtaining Quality Integrated Circuits, No. 6, p. 24. *Describes the methods used by Chrysler Huntsville Automotive Electronics to obtain the quality, durability and reliability characteristics needed to fulfill the 193,200-km (120,000-mile) field performance requirements for Chrysler engine controls, radios and other electronic feature products.* (PR Stress Screening)

C

Caruso, H., MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part I: Section 1 through 4 and Methods 500 through 513, No. 2, p. 51; Part II: Method 514, No. 3, p. 47; Part III: Methods 515 through 519, No. 4, p. 35; Part IV: Methods 504 and 520 through 523, No. 5, p. 45; Part V: Data Item Descriptions and Program Application, No. 6, p. 46. *Presents a side-by-side comparison of the significant features of MIL-STD-810D and MIL-STD-810C, including details related to general test tailoring policy and application, test environments, and test facilities.* (DTE Criteria and Standards, Climatics and Thermal, Test Tailoring, Shock and Vibration, Acoustics; PR Acquisition Policies)

Caviness, A. L., Assessment of the Diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, No. 6, p. 26. *(Abstract–see Ensor, D. S.)*

Choi, Y. H., Defense and the Environment: Policy and Management, No. 1, p. 48. *Describes the problem of balancing national security needs and environmental quality concerns in the United States Department of Defense.* (EE Environmental Planning, Solid and Hazardous Waste Management, Water Quality Impact)

Christiansen, J. R., Seismic Bracing of Equipment, No. 2, p. 67. *(Abstract–see Haskell, R. C.)*

Conkling, T. W., On-Line Information Systems for the Environmental Sciences, No. 2, p. 70. *Reviews the on-line data bases and related information services in the environmental sciences. The different types of data bases (bibliographic, numeric, and full text), the information they contain, and their potential value to researchers are described.* (CA Environmental Modeling/Analysis)

Cull, R. A., Improved Materials Characterization for Spacecraft Applications, No. 3, p. 32. *Discusses two programs the Air Force Materials Laboratory has to improve the characterization of spacecraft-type materials for their contamination potential. The first program, Material Selection Criteria, is to develop a standardized outgassing and condensation test providing kinetic data to support contamination models. The second program is to develop a chamber at Arnold Engineering and Development Center to determine the effects of contamination on sensitive spacecraft surfaces.* (DTE Solar and Space Simulation; CC Criteria and Standards, Sources and Effects)

D

Deaves, D. M., Advanced Analysis Techniques for the Optimum Design of Clean Rooms, No. 5, p. 17. *Describes the application of advanced vibration analysis techniques and computational modeling to the design of micro-electronics clean rooms. The Atkins Stress Analysis System and ASIST computer models were used to perform dynamic finite element analyses to determine the effects of transmitted structural forces on sensitive photolithographic equipment. The Computer Aided Flow Evaluation computer program was used to recirculate flow problems and evaluate the influences of representative obstructions on laminar air flow. Results of both analyses are presented.* (DTE Shock and Vibration; CC Clean Room Design/Materials; CA Environmental Modeling and Analysis)

Dietz, A. G., Liquefied Gaseous Fuels (LGF) Spill Test Facility Program, No. 5, p. 34. *Describes the Department of Energy facility being constructed at the Nevada Test Site which will be capable of the rapid release of large quantities of cryogenic or pressurized flammable or toxic materials. The facility is designed to satisfy the need for information for risk assessment, emergency response, regulation, plant design, plant siting, and hazard mitigation.* (EE Environmental Planning; CA Digital Data Measurement/Processing)

Donovan, R. P., The Application of Condensation Nuclei Monitors to Clean Rooms, No. 2, p. 34. *(Abstract–see Ensor, D. S.)*

Donovan, R. P., Assessment of the diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, No. 6, p. 26. *(Abstract–see Ensor, D. S.)*

E

Ensor, D. S., The Application of Condensation Nuclei Monitors to Clean Rooms, No. 2, p. 34. *Discusses the condensation nuclei monitor, the instrument often used by aerosol researchers to detect 0.1-μm and smaller particles as well as a particle size preseparator. Measurements of clean-room condensation nuclei are presented under a number of situations.* (CC Identification and Measurement)

Ensor, D. S., Assessment of the Diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, No. 6, p. 26. *Discusses both the electrical mobility and diffusional methods of determining the particle size for aerosols below 0.1 μm diameter and the difficulties which arise.* (CC Identification and Measurement, Criteria and Standards)

F

Frieben, W. R., The Effect of Cleanroom Design and Manufacturing Systems on the Microbiological Contamination of Aseptically Filled Products, No. 3, p. 25. *Explores various types of manufacturing constraints that can be employed to improve the sterility assurance of aseptically manufactured products.* (CC Clean Room Design/Materials, Criteria and Standards, Filters and Filtration, Sources and Effects)

G

Gilleece, M. A., Optimizing Contractual Requirements, No. 1, p. 30. *Status of DoD's implementation of Acquisition Improvement Program Initiative Number 14–Optimizing Contractual Requirements to Reduce Costs as discussed at the National Conference and Workshop on Tailoring Environmental Standards to Control Contract Requirements, June 1984.* (PR Acquisition Policies, Criteria and Standards)

Graham, J., Scientists Debate Nuclear Source Terms, No. 6, p. 17. *Summarizes the 1985 debate which concerned the Nuclear Regulatory Commission's nuclear source terms, defined as the quantity, timing, and characteristic of the release of radioactive material to the environment following a core-melt accident.* (EE Environmental Planning)

Green, P. L., Dynamic Aspects of Army Missile Systems, No. 5, p. 40. *Describes unexpected interactions between environmental dynamic loads and missiles and missile launch systems. Specific examples cited include Viper launch tube, ANSSR and Hellfire launch problems, and Hawk launcher-induced shocks.* (DTE Shock and Vibration)

Gregory, D. L., A Rectangular Plate as a Proposed Modal Test Structure, No. 6, p. 41. *(Abstract–see Smallwood, D. O.)*

H

Hamberg, O., Packaging Films for Electronic and Space-Related Hardware, No. 4, p. 46. *Discusses selection of flexible packaging films used to bag and/or wrap precision cleaned electronic or space hardware to protect them from environmental degradation during shipping and storage. The tradeoff between product requirements and the characteristics of the packaging films available is discussed, as well as applications for intimate, environmental, and electrostatic protective packaging.* (DTE Solar and Space Simulation, Criteria and Standards; CC Criteria and Standards, Sources and Effects)

Hartley, C., Simulating Satellite Retrieval Missions Using the Manned Maneuvering Unit, No. 2, p. 29. *Discusses the Manned Maneuvering Unit (MMU), a self-contained, propulsive backpack that provides space-suited astronauts with six degree-of-freedom precision maneuvering capability to at least 150 meters (500 feet) from the Shuttle Orbiter and its use of two major devices: a six-degree-of-freedom Moving Base Carriage (MBC) that allows the trainee to fly the MMU in a large room and to maneuver around and dock with full-scale targets; a large-screen television display that provides the trainee with accurate views of tumbling targets from any point in a surrounding sphere up to 300 meters (1000 feet) in diameter.* (DTE Solar and Space Simulation; CA Environmental Modeling and Analysis)

Haskell, R. C., Seismic Bracing of Equipment, No. 2, p. 67. *Discusses an extensive program that has been underway since 1977 to reinforce the structures on a San Jose site and protect the equipment within the buildings. The goal is twofold: to protect personnel from injury; to return the plant to full operation within thirty days. The program to protect the equipment and building contents is described. Guidelines are outlined telling what items were and were not addressed. Design loads and generalized solutions are presented.* (DTE Shock and Vibration, Criteria and Standards)

Hicks, G. T., Automotive Approach to Obtaining Quality Integrated Circuits, No. 6, p. 24. *(Abstract–see Bustamante, M.R.)*

Hopkins, L.A., IUS Acceptance Failure Data Base, No. 1, p. 25. *(Abstract–see McDaniel, H. M.)*

I

Imbalzano, J. F., Preliminary Studies of the Effects of Semiconductor Reagents on Polymers Containing Fluorine and of Trace Metallic Leachate from Molded Fluorocarbon Resin, No. 4, p. 53. *Discusses traces of undesired materials in semiconductor devices as a serious processing deficiency. The effects of semiconductor reagents on discs molded from commercial materials of construction–perfluoralkoxy (PFA) fluorocarbon resin and polyvinylidene fluoride (PVDF)–were assessed by measuring retained physical properties and by analytical microscopic inspection.* (EE Water Quality Impact; CC Sources and Effects, Identification and Measurement)

K

Kindig, W., Vibration-Random Required, No. 3, p. 36. *(Abstract–see McGrath, J. D.)*

Knollenberg, R. G., The Measurement of Particle Sizes Below 0.1 Micrometers, No. 1, p. 32. *Examines the size domain of particles below 0.3 μm with considerable emphasis on the 0.1 μm and below size range, encompassing the size range of molecules and nuclei which have been described as Rayleigh and Mie scatterers. Contamination control for critical manufacturing environments is emphasized. Theoretical limits of detection using available lasers are defined and instrumental techniques resulting from compromises reached in their practical application are described. Discussion focuses on aerosol and is extended to include liquids and surfaces.* (CC Identification and Measurement)

L

Lambert, R. G., Case Histories of Selection Criteria for Random Vibration Screening, No. 1, p. 19. *Describes the criteria for selecting the random vibration screening level and duration such that defects are uncovered without consuming significant useful life prior to service use. Miner's Linear Damage Rule is used as the basis for the derived damaged expressions. Three real-world case histories are included to demonstrate the application of these criteria.* (DTE Shock and Vibration, Test Tailoring; PR Stress Screening, Criteria and Standards)

Lemons, J., Carbon Dioxide and the Environment: A Problem of Uncertainty, No. 2, p. 60. *Discusses solutions to the carbon dioxide problem including remedial action and sacrifices which must be made by present generations. Much of the uncertainty involves projections of future energy use, and scientific knowledge of the carbon cycle and the environment.* (EE Air Quality Impact, Energy Production/Use, Environmental Planning; CA Environmental Modeling/Analysis)

Liu, B. Y. H., On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, No. 3, p. 19. *Addresses the measurement accuracy of the optical particle counter. Data are presented showing the response characteristics of several widely used commercial optical counters and the comparative size distribution measurement made by means of these instruments.* (CC Identification and Measurement, Criteria and Standards, Filters and Filtration, Sources and Effects)

Locke, B. R., Assessment of the Diffusion Battery for Determining Low Concentration Submicron Aerosol Distributions in Microelectronics Clean Rooms, No. 6, p. 26. (*Abstract–see Ensor, D. S.*)

M

MacDiarmid, P. R., Reliability Growth Testing Effectiveness, No. 4, p. 21. (*Abstract–see Morris, S. F.*)

Malam, D., Advanced Analysis Techniques for the Optimum Design of Clean Rooms, No. 5, p. 17. (*Abstract–see Deaves, D. M.*)

Moody, J. R., Preliminary Studies of the Effects of Semiconductor Reagents on Polymers Containing Fluorine and of Trace Metallic Leachate from Molded Fluorocarbon Resin, No. 4, p. 53. (*Abstract–see Imbalzano, J. F.*)

Morris, S. F., Reliability Growth Testing Effectiveness, No. 4, p. 21. *Presents an overview of a Rome Air Development Center in-house study whose objective was to fully investigate the subject of reliability growth testing to enable a better understanding by reliability engineers as well as to present guidance for its potential application in the development of Air Force systems.* (PR Acquisition Policies, Criteria and Standards)

Mullins, M. E., Air Stripping of Volatile Organics, No. 3, p. 28. (*Abstract–see Stallings, R. L.*)

Murphy, E. B., Solvent Contamination Determined by UV Reflection, No. 5, p. 23. *Describes a simple test to determine the presence or absence of a contaminant in a solvent performed by using ultraviolet-reflection spectroscopy.* (CC Identification and Measurement)

Mc

McClellan, M. S., Clean Room Considerations for Avoiding Molecular Contamination, No. 5, p. 21. *Examines control of contamination for optical products, especially those operating in the ultraviolet spectrum from three perspectives: materials involved, personnel controls, and environmental conditions. Lessons learned and the solutions that have been developed at Perkin-Elmer are discussed in several key areas: modular clean room procurement, verification of HEPA filters, clean room maintenance, design and operational certification and materials controls.* (CC Clean Room Design and Materials, Sources and Effects)

McDaniel, H. M., IUS Acceptance Failure Data Base, No. 1, p. 25. *Describes the failure data base obtained in component and vehicle level acceptance tests of the Inertial Upper Stage (IUS). Failure trends are presented as a function of test environment, failure classification, and testing sequence for eight flight vehicles. The test program on both components and vehicles was conducted in accordance with MIL-STD-1540A. Test results have been tabulated and stored in a computer format for easy retrieval by component, vehicle, environment, failure type, failure causes, etc. The acceptance test data base contains results for system level tests of the first eight IUS flight vehicles and the thousands of tests of components used in these vehicles.* (DTE Criteria and Standards, Shock and Vibration, Solar and Space Simulation, Acoustics, PR Stress Screening)

McGrath, J. D., Vibration-Random Required, No. 3, p. 36. *Presents the General Electric Aerospace Control Systems Department approach to hardware screening using random vibration as a stimulus. The proposed techniques were developed to achieve a screening program that is cost effective and is supportable in dollar payoff with increased productivity. Cost savings are realized by avoiding the assignment of a costly combined environment facility to each product line and reducing the number of test cycles required in the screening process.* (DTE Shock and Vibration; PR Stress Screening)

P

Prettyman, T. J., Corrosion Testing of Captor Strongback Bands, No. 4, p. 29. *Discusses accelerated corrosion tests conducted by the Naval Surface Weapons Center on CAPTOR mine strongback bands. Strongback bands are part of the CAPTOR suspension system, which interfaces the mine to the delivery system of minelaying aircraft and surface ships. The laboratory tests were performed to recreate the stress corrosion cracking failures observed in CAPTOR stockpile storage. The tests were designed to produce the same failures during weeks of laboratory testing which occurred after several years of stockpile storage. This magnitude of accelerated testing required the use of aggressive corrosion test environments.* (DTE Climatics and Thermal)

Pugacz-Muraszkiewicz, I., A Methodical Approach to Accelerated Screening of Card Assemblies, Static Burn-In Case, No. 2, p. 42. *Presents a methodical approach for screening cards establishing values of critical parameters, such as apparent activation energy and maximum temperature, hence shortest time for screening, and statistical life distributions of assemblies.* (PR Stress Screening; DTE Climatics and Thermal)

R

Rogers, T. N., Air Stripping of Volatile Organics, No. 3, p. 28. (*Abstract–see Stallings, R. L.*)

S

Schafer, H.C., MIL-STD-810D vs. MIL-STD-810C—A Detailed Summary and Comparison Part V: Data Item Descriptions and Program Application, No. 6, p. 46. (*Abstract–see Caruso, H.*)

Shon, E. M., Packaging Films for Electronic and Space-Related Hardware, No. 4, p. 46. (*Abstract–see Hamberg, O.*)

Smallwood, D. O., A Rectangular Plate as a Proposed Modal Test Structure, No. 6, p. 41. *Discusses studies that show a rectangular plate can be used for several purposes, such as comparing various modal systems and modal extraction algorithms, comparing test techniques, and training new personnel in these tasks.* (DTE Shock and Vibration, Criteria and Standards; CA Environmental Modeling/Analysis)

Smith, A. C., A Review of Contamination Issues Associated with an Orbiting Space Station External Environment, No. 1, p. 52. *Discusses issues relative to ongoing contamination concerns in the Space Station program, pointing out some errors of the past and suggesting improvements in experimental approaches to enhance the interpretability of data. Focuses attention on a critical technology that has been ignored to some extent in past flight experiments. References and data are presented to show that significant efforts have been made in the contamination area.* (CC Criteria and Standards, Identification and Measurement, Sources and Effects, DTE Solar and Space Simulation)

Sontz, C., MIL-STD-781D and MIL-HDBK-781 A Final Report, No. 3, p. 41. (*Abstract–see Wallace, W. E.*)

Stallings, R. L., Air Stripping of Volatile Organics, No. 3, p. 28. *Reviews the Air Force's Installation Restoration Program including an active research program into treatments for contaminated groundwater. Packed-tower air stripping of volatile organic compounds (VOCs) from groundwater has proven to be a cost-effective and efficient method of treatment. The Research Triangle Institute (RTI) participated in a packed-tower air-stripping test program for the Air Force in which 16 organic compounds in a groundwater plume were identified, and the air-stripping behavior of each was examined. The performance of four different commercial packing materials was evaluated for each of the 16 contaminants over a range of gas-liquid flow ratios. The mass transfer coefficients for each of the contaminants were subsequently calculated, and the most effective operating conditions were determined.* EE Water Quality Impact; CC Filters and Filtration)

Stokes, K. H., Clean Room Classification, No. 6, p. 37. *Describes a dual classification system for clean rooms, into either a flow controlled system, or a dilution controlled system.* (CC Clean Room Design and Materials, Criteria and Standards)

Stowers, I. F., Review of Selected Papers from the 7th International Symposium on Contamination Control, No. 2, p. 37. *Reviews abstracts of 52 papers presented at the ICCCS Meeting held September 1984, Paris, which address industrial and electronic contamination.* (CC Clean Room Design/Materials, Criteria and Standards, Filters and Filtration, Garments and Wipes, Identification and Measurement, Sources and Effects, Training and Education)

Szymanski, W. W., On Aerosol Size Distribution Measurement by Laser and White Light Optical Particle Counters, No. 3, p. 19. (*Abstract–see Liu, B. Y. H.*)

W

Wallace, W. E., MIL-STD-781D and MIL-HDBK-781 A Final Report, No. 3, p. 41. *Presents an overview of MIL-STD-781D and MIL-HDBK-781. Each section of the document is summarized with appropriate statistical and graphical examples provided. Major areas of concern are: test planning and control, development testing, production testing, and environmental stress screening. Combined environmental test conditions and profiles are also discussed.* (PR Criteria and Standards; DTE Criteria and Standards)

Willoughby, W. J., Navy Position on Tailoring Implementation, No. 2, p. 48. *Discusses the potential hazards of using military specifications in the development of effective procurement and stress screening programs. Falacies regarding part quality when MIL-M-38510 and MIL-Q-9858A are applied are cited. The need for engineering judgment is recognized as paramount.* (PR Acquisition Policies, Criteria and Standards, Stress Screening) ■